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VI. *An Account of a Book. Lexicon Technicum : Or, an Universal English Dictionary of Arts and Sciences, explaining not only the Terms of Art, but the Arts themselves. In Folio. By J. Harris, M. A. and F. R. S.*

**T**HE design of this Dictionary is different from that of most others ; for here are explained not only the Terms which are used in every Art and Science, but likewise the Arts and Sciences themselves ; in most of which the Reader will find something that is new, and all things deliver'd in a clear and regular method.

The Author hath been very full and particular in all the parts of the Mathematicks.

In *Geometry*, under the name of each Figure he demonstrates its essential Properties, and shews its construction and use.

Under such words as *Parabola*, *Ellipsis*, *Hyperbola*, the Author is very large, and not only defines those Figures, but demonstrates their most remarkable and Primary Properties ; as likewise those of the *Conchoid*, *Cycloid*, *Logarithmick Line*, *Cissoid*, *Quadratrix*, and *Spiral Lines* ; and is very full in the useful arts of *Trigonometry*, both *Plain* and *Spherical*, with their uses and applications ; in *Spherical Geometry*, or the Art of projecting the Sphere *in plano*, in *Surveying*, *Dyalling*, &c. in all which he has not so strictly confin'd himself to other Authors, but that the Reader may meet with something that is new.

Under *Algebra* and the Terms thereunto belonging (such as *Equation*, *Construction*, &c. ) he hath given a clear and distinct account of the nature of that Science ; giving all the *Rules* together with their *Reasons* and *Demonstrations*, the *Resolution* of *Adfestred Equations*, the *Constructions* of *Cubicks* and *Biquadratics*, with the *Investigation* of Mr *Baker's Central Rule*, &c.

Under the word *Asymptote* he hath several considerations concerning Asymptotical Curves, where he shows that Curves which admit of no Rectilineal Asymptot may notwithstanding be asymptotical to one another, with several other considerations of the like nature. Nor has he been less full in what we call the new Methods; under the word *Fluxions* he has given us the first Principles of that Science, viz. the nature and *Algorithm* of them; and their use and application he has every where given under proper heads, and by these is shown an universal Method of drawing of *Tangents* to all Curves, of determining the Points of *Inflexion* and *Retrogression*: of resolving questions *de Maximis & Minimis*; of finding the Centres of Gravity, Oscillation, &c.

All the parts of *Arithmetick* are here explained, with its application to *Anatocism*, *compound Interest*, and *Annuities*, together with the doctrine of *Surds*, the Method of *Extracting Roots* by *converging Series*, *Logarithms*, and *Fractions*, both *Vulgar*, *Decimal*, and *Sexagesimal*.

He hath likewise given the Description and Use of both the *Celestial* and *Terrestrial Globe*, the different Hypotheses of Astronomers, with an explication of the Terms belonging to each; the *Parallaxes*, *Magnitudes*, *Motions*, and *Distances* of the *Planets*; with several curious Observations relating to the Heavenly Bodies, Mr *Newton's* Theory of the Moon, with a large account of *Comets*, from the same Author; the Nature and Use of *Opticks*, *Catoptricks*, *Dioptricks*, with several Methods for finding the *Foci* of Spherical Glasses, the doctrine of the *Acceleration* of Heavy Bodies; the composition of Motion, *Geography*, *Musick*, &c.

In *Anatomy* he has been very particular, giving a large account of all the Parts of a Humane Body, both Internal and External, with the descriptions of the Muscles and Bones, in a fair Plate, and under such general words as *Blood*, *Circulation*, *Heart*, *Ear*, *Eye*, *Arteries*, *Veins*, *Bile*, *Lympha*, *Chylification*, &c. he hath always consulted the best Authors.

In

In *Architecture* likewise he hath in a Plate given an explanation of the Five Orders of Pillars, together with a full and clear account of the Nature and Rules of that Art, which is to be met with under the several terms thereunto belonging.

In *Fortification*, besides an explication of the whole Art under proper terms from the best Authors in that kind, he hath also a new Plate with a description annexed, wherein all the parts of a Fortify'd place are clearly seen at one view.

He hath described the several parts of a *Ship*, both as in the Dock when Building, and when Rigged and under sail at Sea : Wherein he has been very accurate and particular ; for besides the helps of the best Dictionaries in that kind, as well as *Draughts*, *Sections* and *Models*, he has often gone aboard himself to get a more ready and sure knowledge in this matter.

He hath given the *Laws of Motion*, both with respect to uniform and accelerated Motions, he hath determin'd the Laws of the shock of Bodies perfectly *hard*, and those that are *Elastick*, &c.

In *Gunnery* he hath given demonstrative rules and methods for shooting in Great Guns and Mortars, from the Theorems of the Learn'd Captain *Halley*, and from Mr *Anderſon's* Tables.

He hath given us also the Doctrine of *Mechanicks* and *Statics*, hath determin'd the Laws of Projectiles, and is very large in *Hydrostatics*, giving an account of the nature and properties of Fluids, determining them both Experimentally and Mathematically, and has annexed a very accurate Table of the Specifick gravities of different Bodies, from Mr *Boyle*, Mr *Collins*, and his own Experiments.

The Grand *Phænomena of Nature* he hath explain'd from the best Authors, as the Law of Gravitation from Mr *Newton*, the Theory of the Tides from Captain *Halley* on his Principles, &c. And under such general Terms as *Magnetism*, *Light*, *Colours*, *Elasticity*, *Solidity*, *Divisibility*, *Volatility*, *Virginity*, *Heat*, *Cold*, *Wind*, &c. you have what is discovered concerning the nature and properties of those qualities from Experiments and Observation.

The *Phænomena of the Rainbow or Iris*, he hath accounted for from the Learned and Ingenious Captain *Halley*.

He hath given an account of *Snow* from Dr *Grew*, and one of *Ice* from the *French*.

As to *Sound* he hath collected all he cou'd meet with, but withal hints, that that quality is not sufficiently understood, and wishe it were a little better considered.

He is very full in his Explication of the Phænomena and Properties of the *Air* and *Atmosphere*, as its *Gravity*, *Spring* or *Elasticity*,

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ty, &c. and likewise in its descriptions of the use of such Instruments as have been invented, to enable us to judge of them, as the Barometer, Thermometer, Hygrometer, &c. most of which is from the Honourable Mr Boyle and the Philosophical Trans.

He hath given an account of *Springs* and *Fountains* from Capt. Halley and Dr Woodward.

In the Art of *Botany* he hath been very large, giving an account of the several kinds of *subalternate* Species of Plants, and their Specific differences, in which he chiefly follows our excellent Botanist Mr Ray, but hath consulted Mr Tournesort, also Morison and other Writers on this subject.

He hath explain'd the method of calculating of *Automata* or *Clock* and *Watch-work* from Mr Derham, as also the terms of Art used in Painting and Sculpture.

He has given a Table of Fossils from the Learn'd Dr Woodward; a Scheme of Metals and Stones from Bp Wilkins real Character; and a Table of Animals from Mr Ray.

He has also given from Dr Woodward a very large account of Vegetation confirm'd by very accurate Experiments and Observations, from all which that matter is set in a better light than it has ever yet appeared in.

In *Chymistry* he hath been very large and particular, explaining the *Chymical Principles*, *Vessels* and degrees of *Fire*, and hath omitted no process or Operation of use, that he could either meet with in Books, procure from his Friends, or had an opportunity of trying himself.

In *Heraldry* he hath given the entire Art of Blazoning and Marshalling a Coat of Arms; and explained all the *Ordinaries*, *Charges*, *Bearings*, &c. by Figures, but hath said nothing of Families (any further than that such a Coat belongs to such a Name) explaining only the Art and its terms.

In *Logick*, *Metaphysics*, *Ethicks*, *Grammar*, *Rhetorick*, &c. he is designedly very short; giving usually the bare explication of the Words and terms of those Arts.

In *History* and *Chronology* he hath given what properly belongs to them as Arts, as an account of the *Civil* computation of time, the original and reduction one to another of the several *Era's*, *Epocha's*, *Periods*, &c.

As to the *Law*, he has consulted the best Authors and Dictionaries in that kind he could meet with, and hath from thence transcribed abridgedly all that seem'd necessary, and then had it examin'd and corrected by a Person of known Ability in that Profession.

Printed for Sam. Smith and Benj. Walford, Printers to the Royal Society, at the *Princes Arms* in St Paul's Church-yard. 1704.

## A D V E R T I S E M E N T.

**T**ables of Interest for all Rates and Times, newly and exactly computed, by Mr Israel Falgate, at the Bank of England.